

What is claimed is:

- 1 1. A resonator assembly comprising:
2 a resonator including a plate having a plurality of openings therein and at least
3 one side wall extending from the periphery of the plate; and
4 a scoop including a top plate and at least one side wall extending substantially
5 perpendicularly therefrom, the at least one side wall of the scoop attached to the
6 resonator such that the scoop is disposed above the resonator and such that the top
7 plate substantially overhangs the plate;
8 wherein the scoop includes one side without a side wall so as to provide an
9 opening into a space defined between the scoop and the resonator plate;
10 whereby the scoop captures a passing fluid so as to substantially equalize the
11 pressure impinging on the resonator plate.
- 1 2. The resonator assembly of claim 1 wherein the at least one side wall of the
2 resonator extends substantially perpendicularly from the resonator plate.
- 1 3. The resonator assembly of claim 1 wherein the at least one side wall of the
2 scoop is attached to the resonator by one of welding or brazing.
- 1 4. The resonator assembly of claim 1 wherein the top plate of the scoop and the
2 resonator plate are spaced substantially equidistant.
- 1 5. The resonator assembly of claim 1 wherein the top plate of the scoop and the
2 resonator plate are curved.
- 1 6. The resonator assembly of claim 1 wherein the spacing between the top plate
2 of the scoop and the resonator plate is from about 1 millimeter to about 2 millimeters.
- 1 7. The resonator assembly of claim 1 wherein the resonator plate includes front
2 and rear ends, the front and rear ends being disposed at different elevations.
- 1 8. The resonator assembly of claim 7 wherein the difference in elevation
2 between the front and rear ends is from about 1 millimeter to about 3 millimeters.

- 1 9. The resonator assembly of claim 7 wherein the rear end of the resonator plate
2 is disposed higher than the front end.
- 1 10. The resonator assembly of claim 7 wherein one side of the top plate of the
2 scoop is attached to the rear end of the resonator plate such that the opening is at
3 the front end.
- 1 11. The resonator assembly of claim 1 wherein the resonator and scoop include
2 an axial length and a circumferential length, wherein the axial length is greater than
3 the circumferential length.
- 1 12. The resonator assembly of claim 1 wherein the resonator and scoop include
2 an axial length and a circumferential length, wherein the circumferential length is
3 greater than the axial length.
- 1 13. The resonator assembly of claim 1 wherein the top plate of the scoop includes
2 at least one opening.
- 1 14. A resonator assembly comprising:
2 a resonator including a plate having a plurality of openings therein and at least
3 one side wall extending from the periphery of the plate; and
4 a box attached on top of the resonator, the box having a top plate and at least
5 one side wall extending from the entire periphery of the top plate, wherein the top
6 plate includes a plurality of openings;
7 wherein a plenum is defined between the box and the resonator plate, the
8 plenum having a volume;
9 whereby a fluid entering the plurality of openings in the top plate of the box is
10 substantially equalized in the plenum prior to impinging on the resonator plate.
- 1 15. The resonator assembly of claim 14 wherein the at least one side wall of the
2 box extends substantially perpendicular away from the top plate.
- 1 16. The resonator assembly of claim 14 wherein the top plate of the box and the
2 resonator plate are substantially identical.

1 17. The resonator assembly of claim 14 wherein the top plate of the box and the
2 resonator plate are substantially equidistant.

1 18. The resonator assembly of claim 14 wherein the side walls of the resonator
2 are attached to a turbine engine component so as to define a volume between the
3 component and the resonator.

1 19. The resonator assembly of claim 18 wherein the plenum volume is less than
2 the resonator volume.

1 20. The resonator assembly of claim 14 wherein the height of the box is from
2 about $\frac{1}{4}$ to about $\frac{2}{5}$ the height of the resonator.